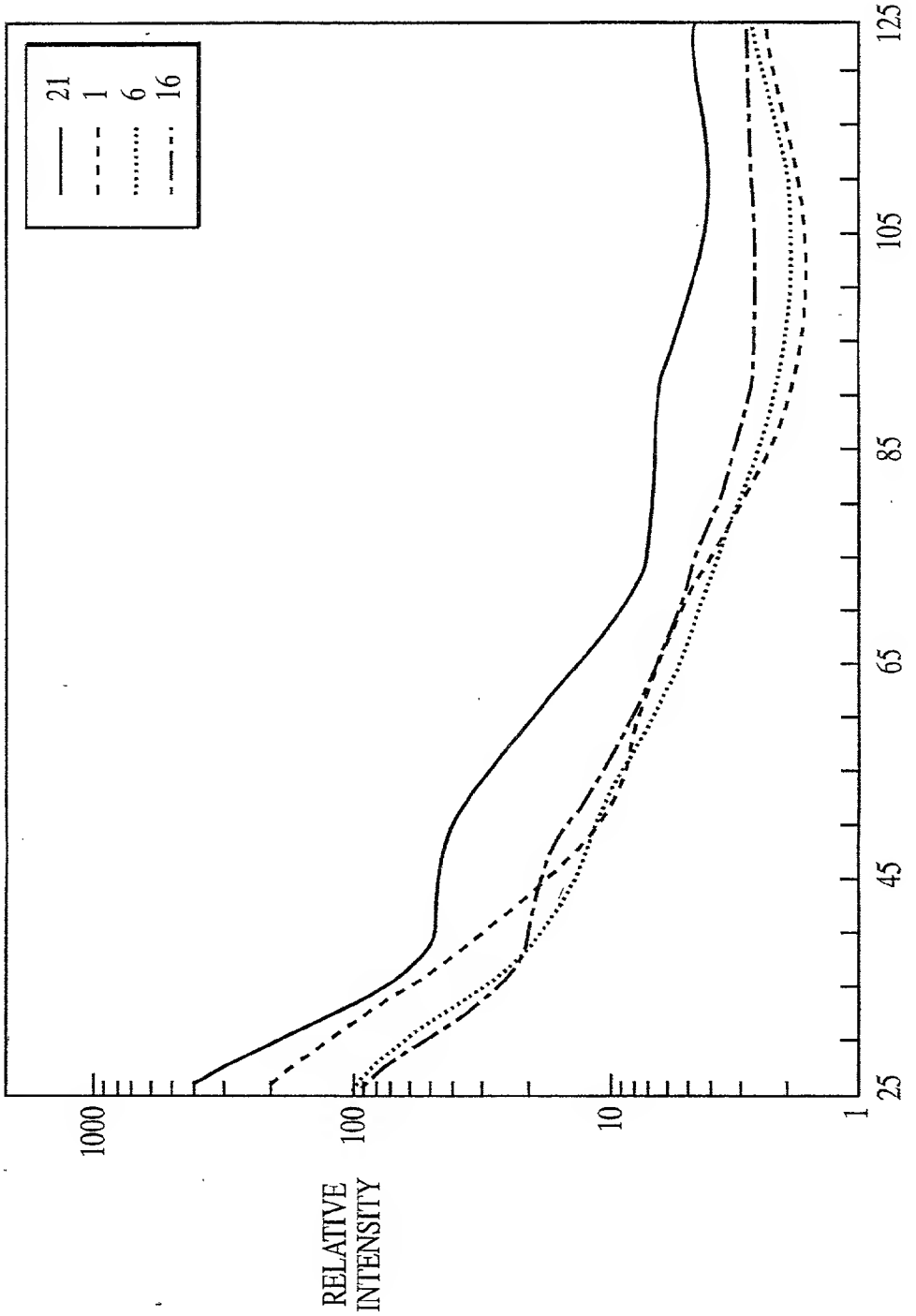

21
1
6
16
1000
100
10
1
RELATIVE INTENSITY
25
45
65
85
105
125
θ DEGREES

Fig. 1

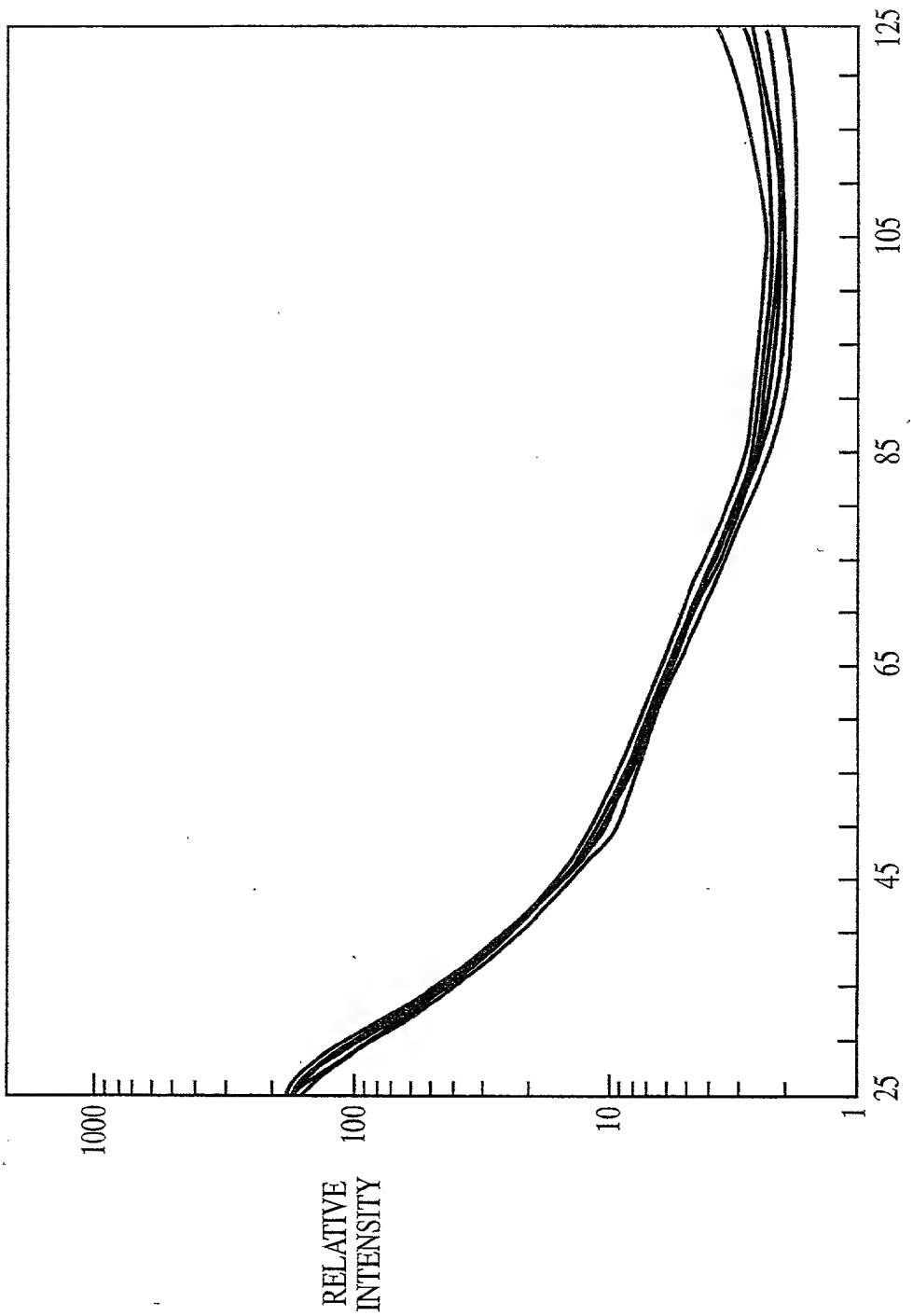


Fig. 2

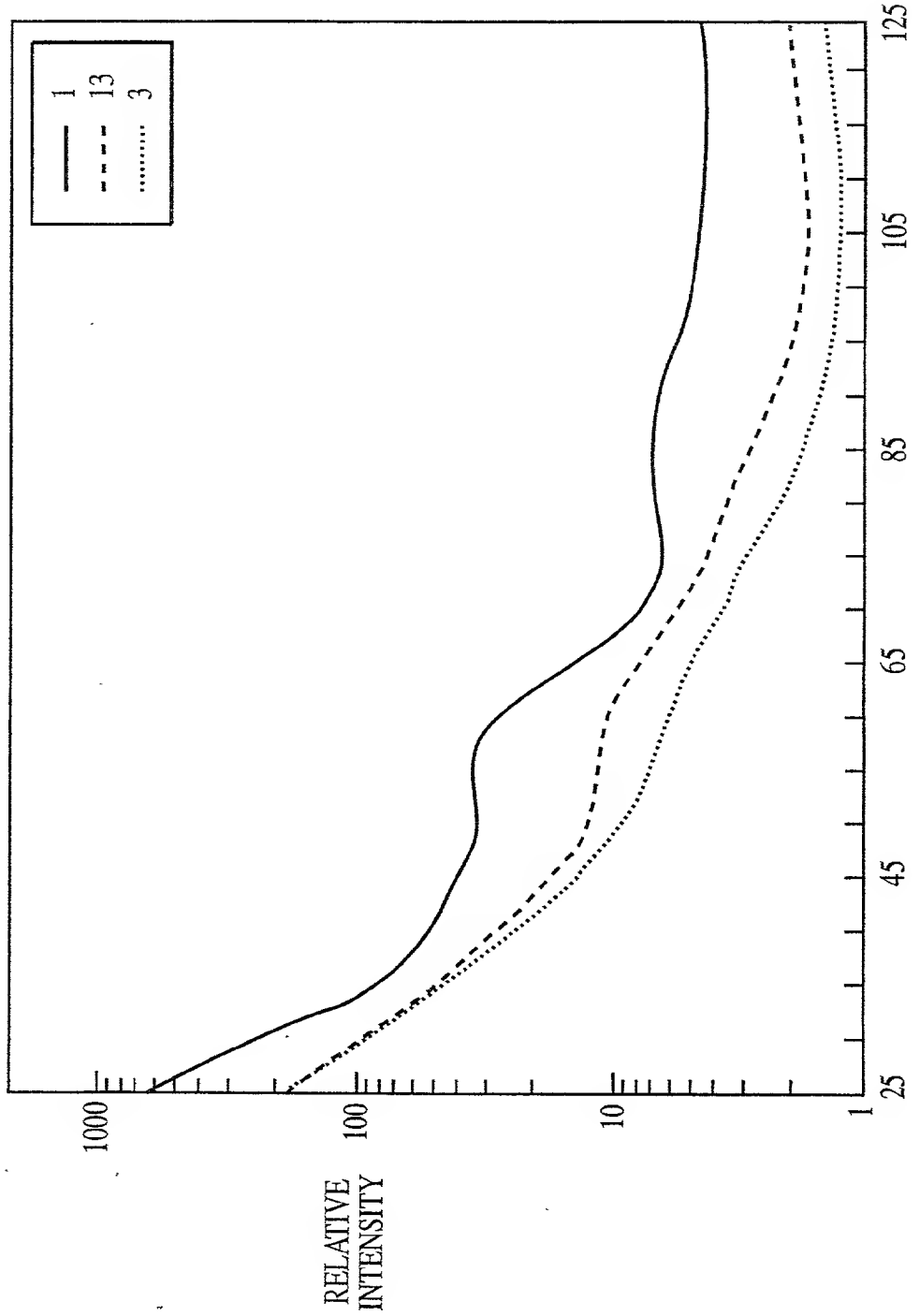

1
13
3
1000
100
10
1
RELATIVE INTENSITY
25
45
65
85
105
125
θ DEGREES

Fig. 3

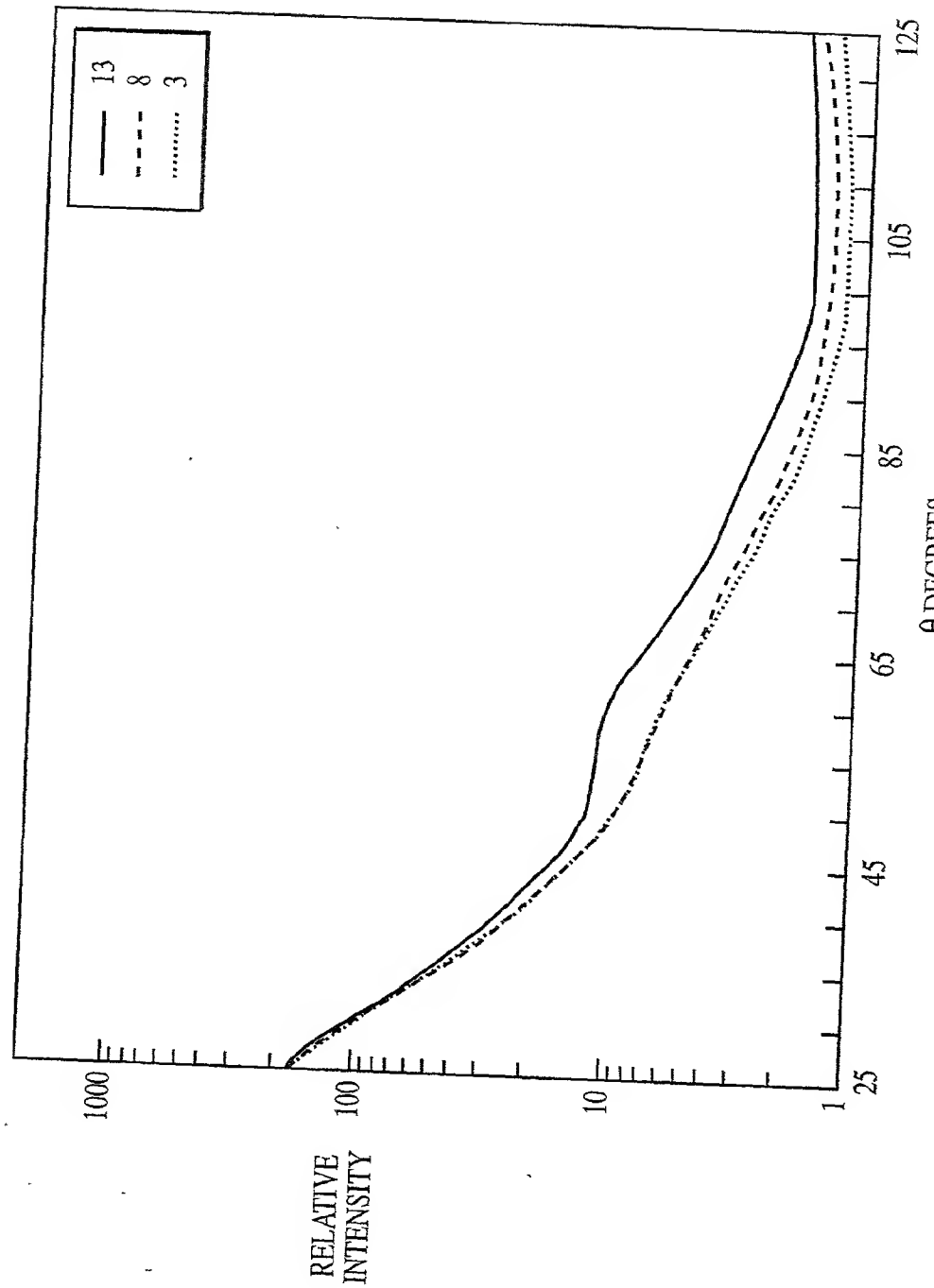

13
8
3
1000
100
10
1
RELATIVE INTENSITY
25
45
65
85
105
125
θ DEGREES

Fig. 4

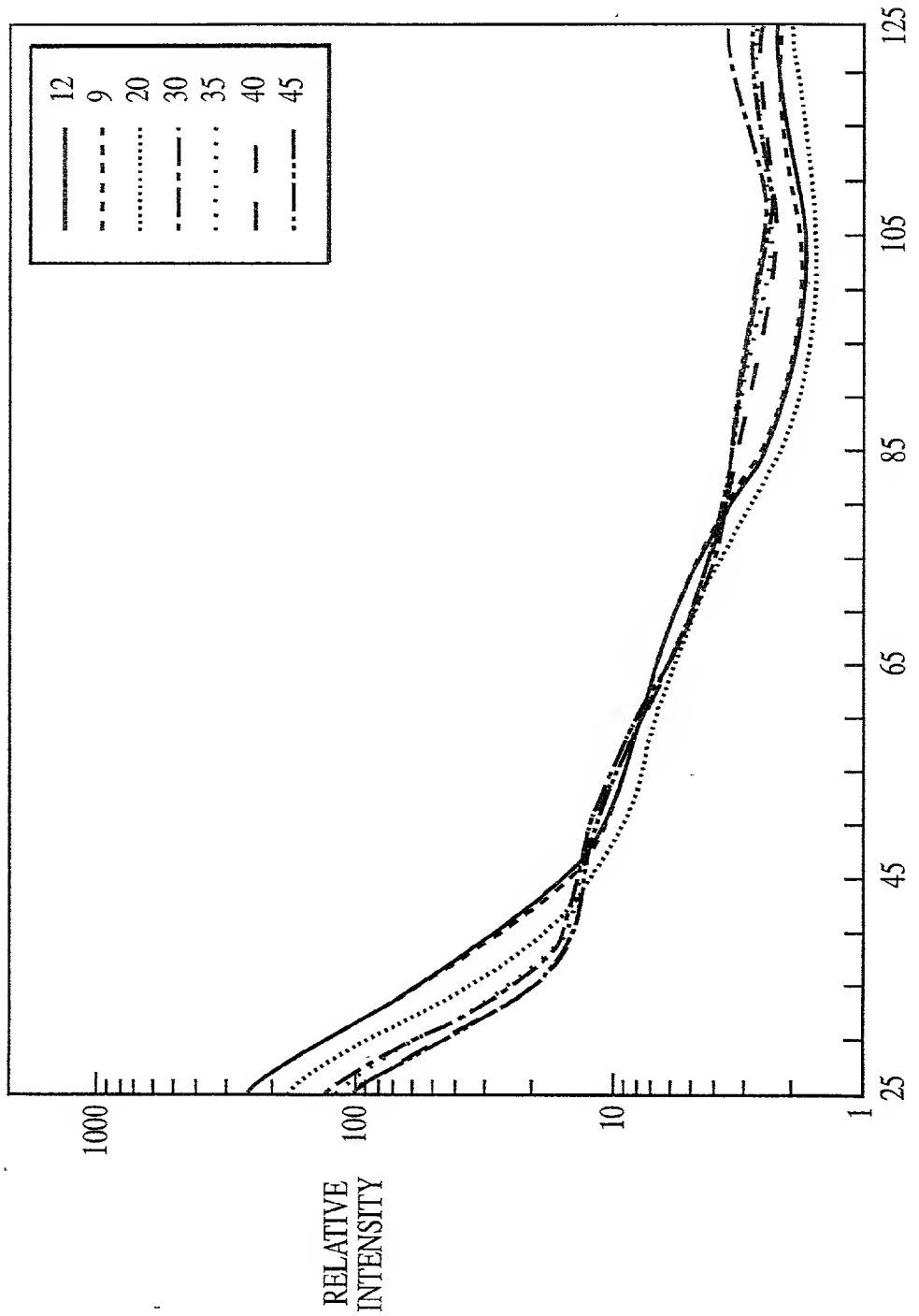

12
9
20
30
35
40
45
1000
100
10
1
RELATIVE INTENSITY
25
45
65
85
105
125
θ DEGREES

Fig. 5

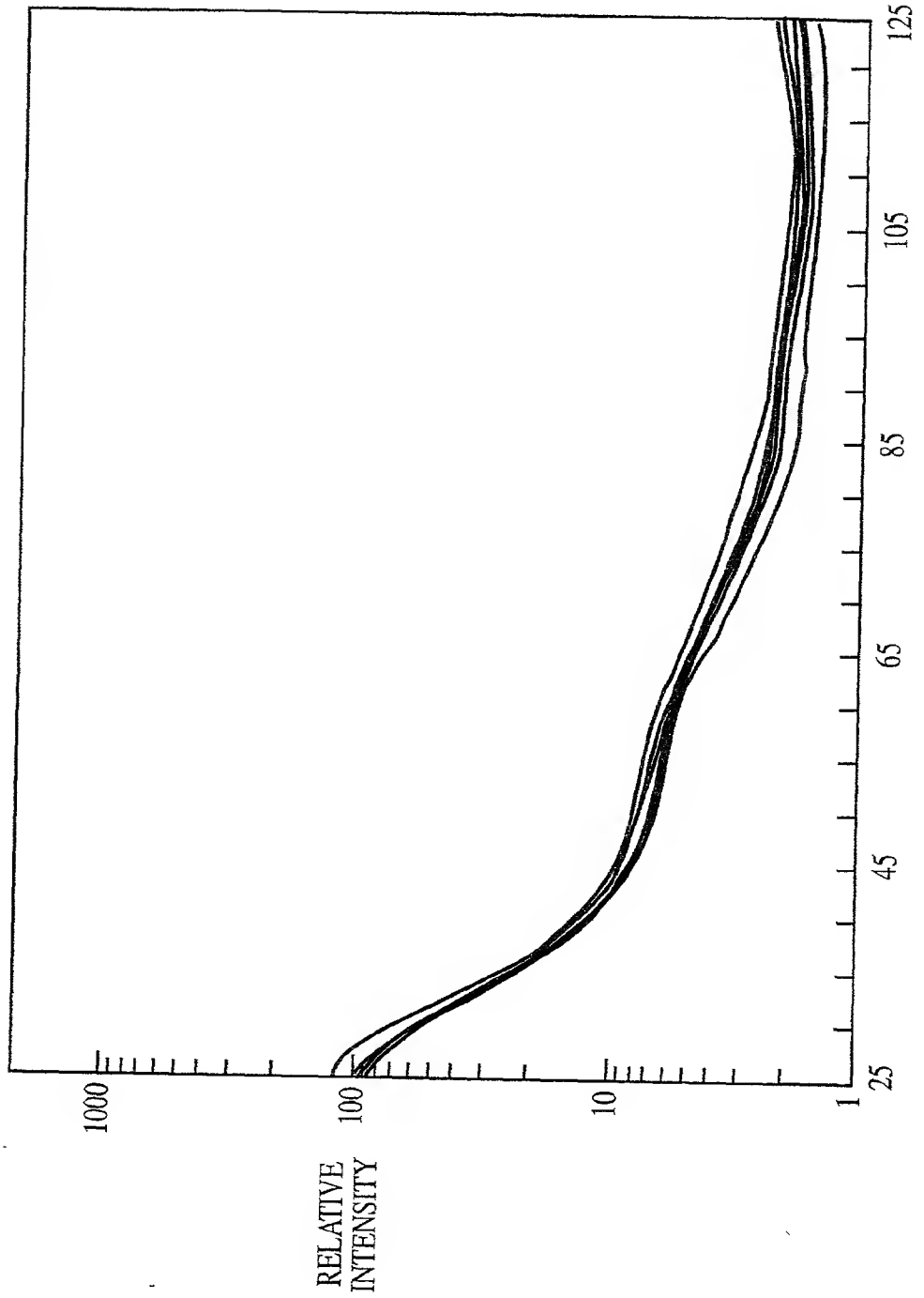


Fig. 6

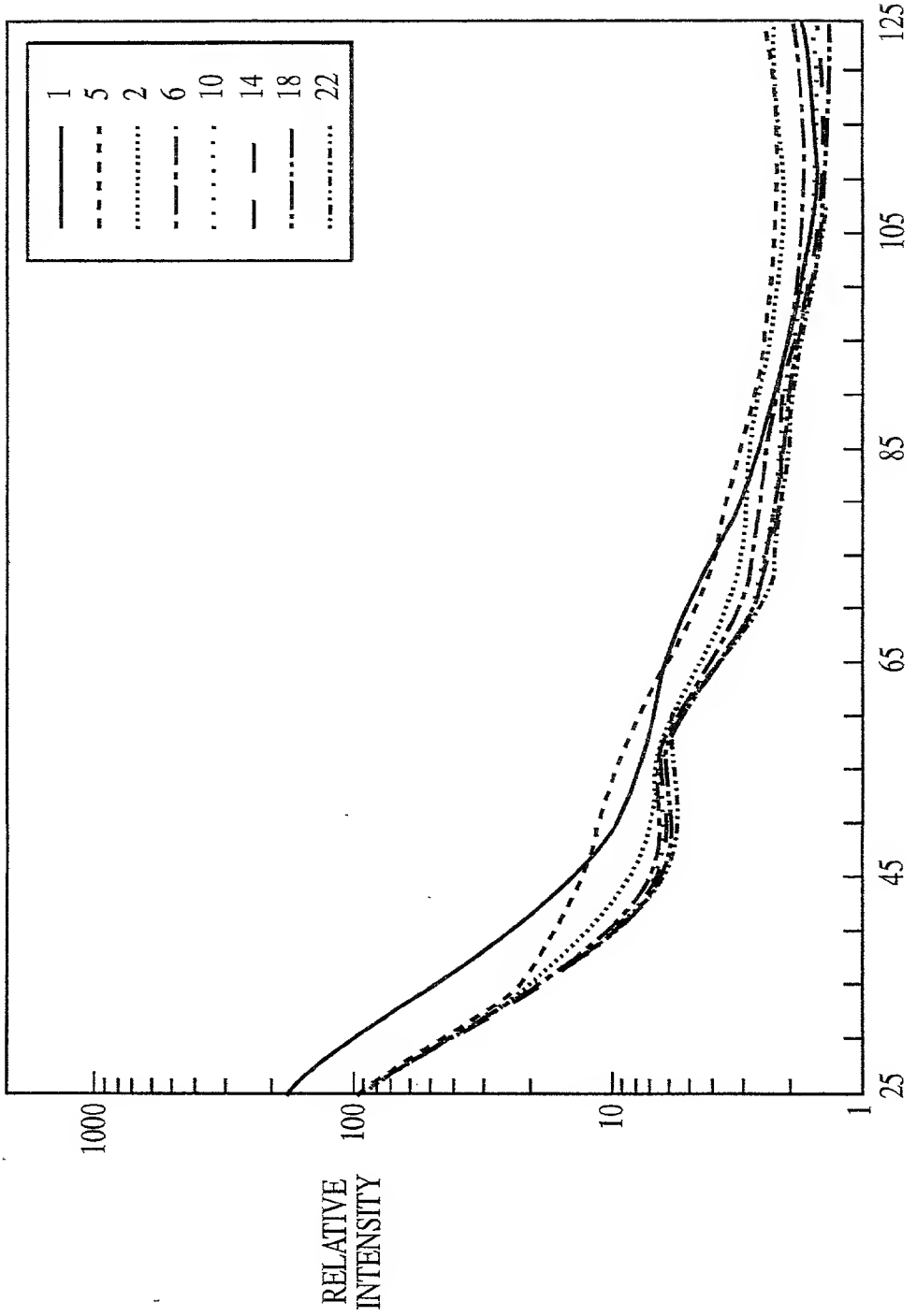

1
5
2
6
10
14
18
22
1000
100
10
1
RELATIVE INTENSITY
25
45
65
85
105
125
θ DEGREES

Fig. 7

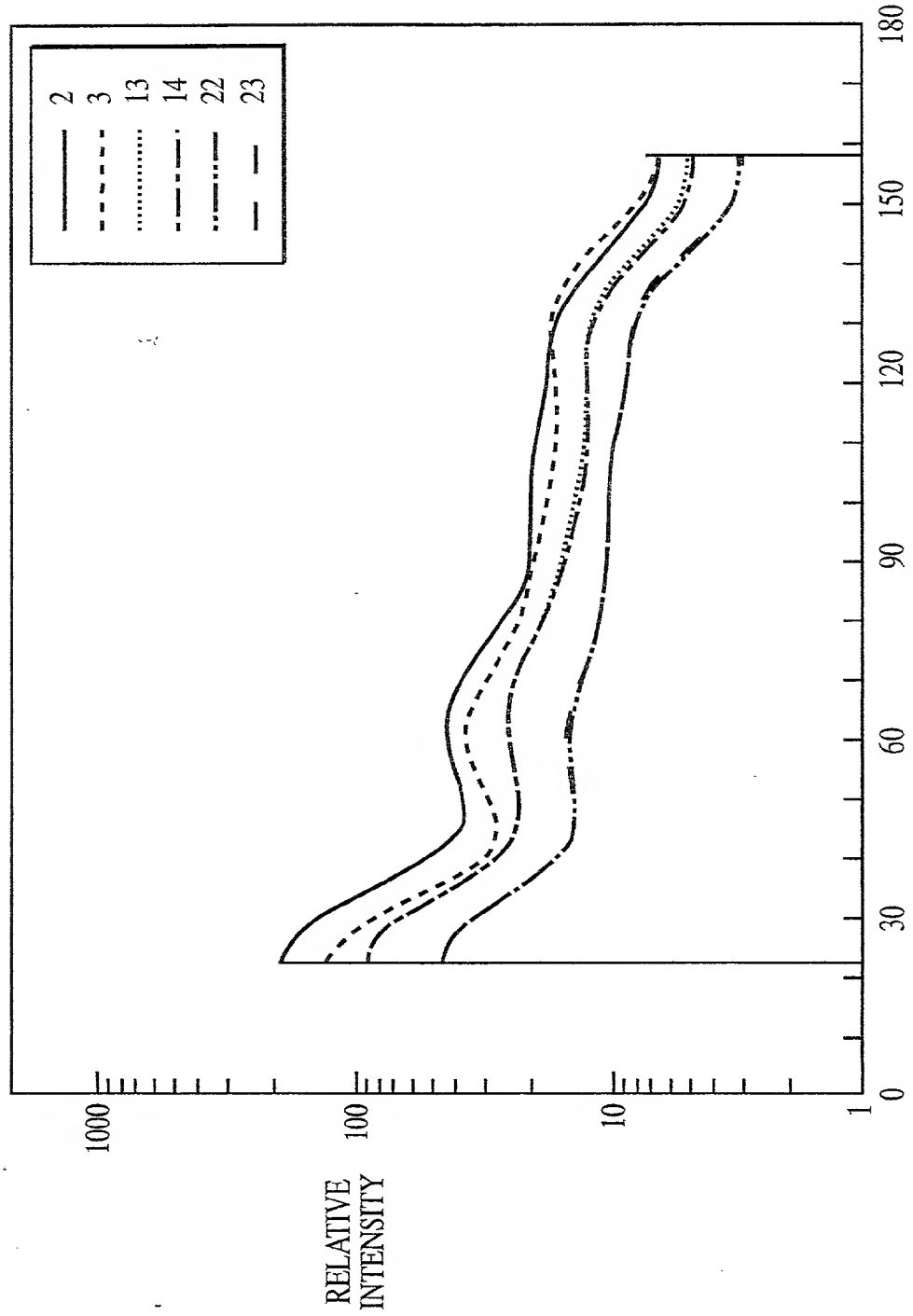

2
3
13
14
22
23
1000
100
10
1
RELATIVE INTENSITY
0
30
60
90
120
150
180
SCATTERING ANGLE θ (DEGREES)

Fig. 8A

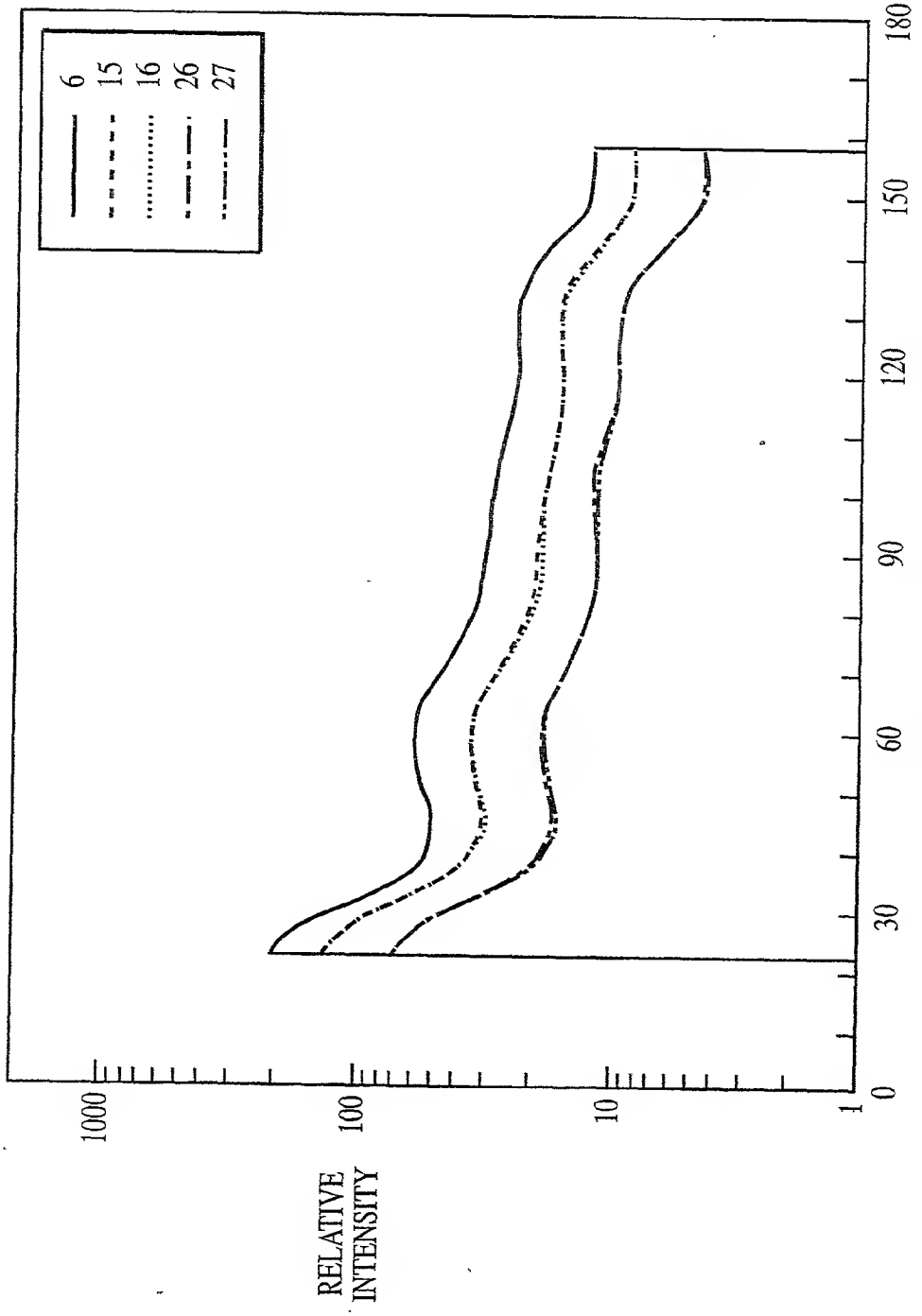

6
15
16
26
27
1000
100
10
1
0
30
60
90
120
150
180
RELATIVE INTENSITY
SCATTERING ANGLE θ (DEGREES)

Fig. 8B

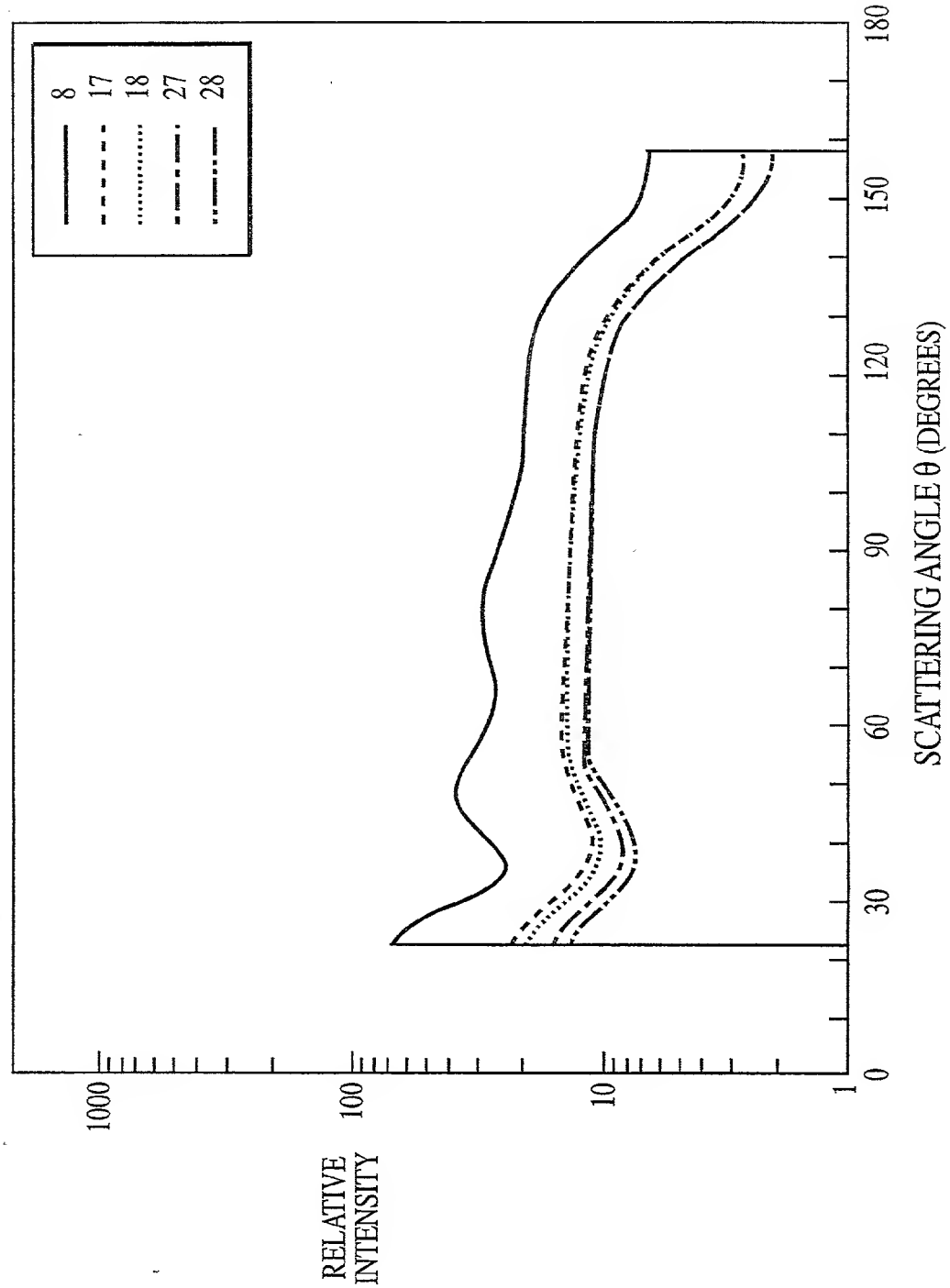

8
17
18
27
28
1000
100
10
1
0
30
60
90
120
150
180
RELATIVE INTENSITY
SCATTERING ANGLE θ (DEGREES)

Fig. 8C

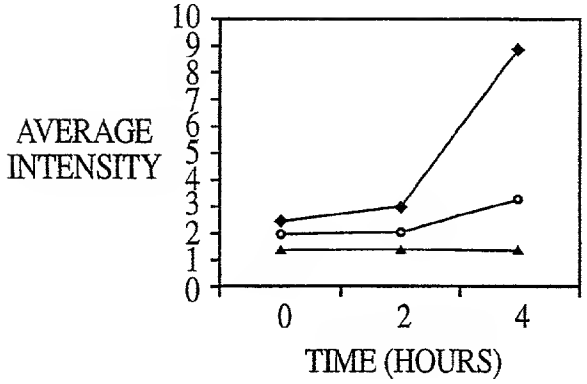


Fig. 9A

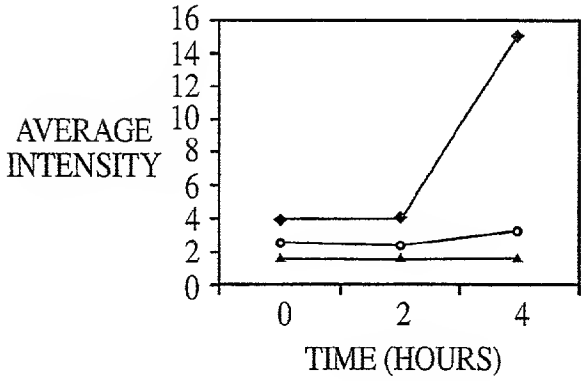


Fig. 9B

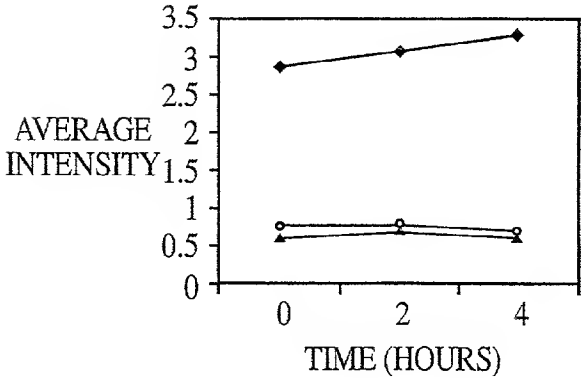


Fig. 9C

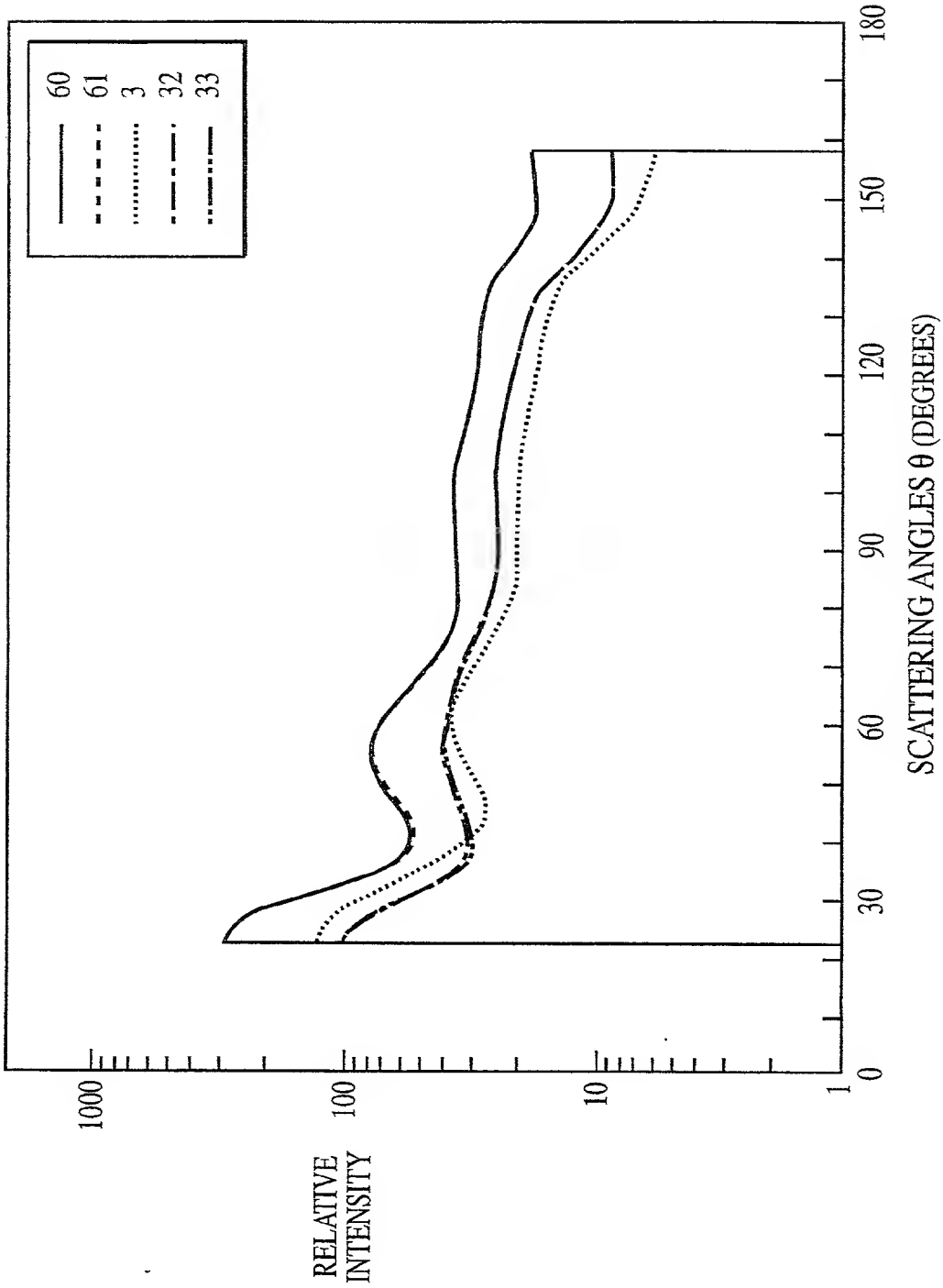

60
61
3
32
33
1000
100
10
1
0
30
60
90
120
150
180
RELATIVE INTENSITY
SCATTERING ANGLES θ (DEGREES)

Fig. 10

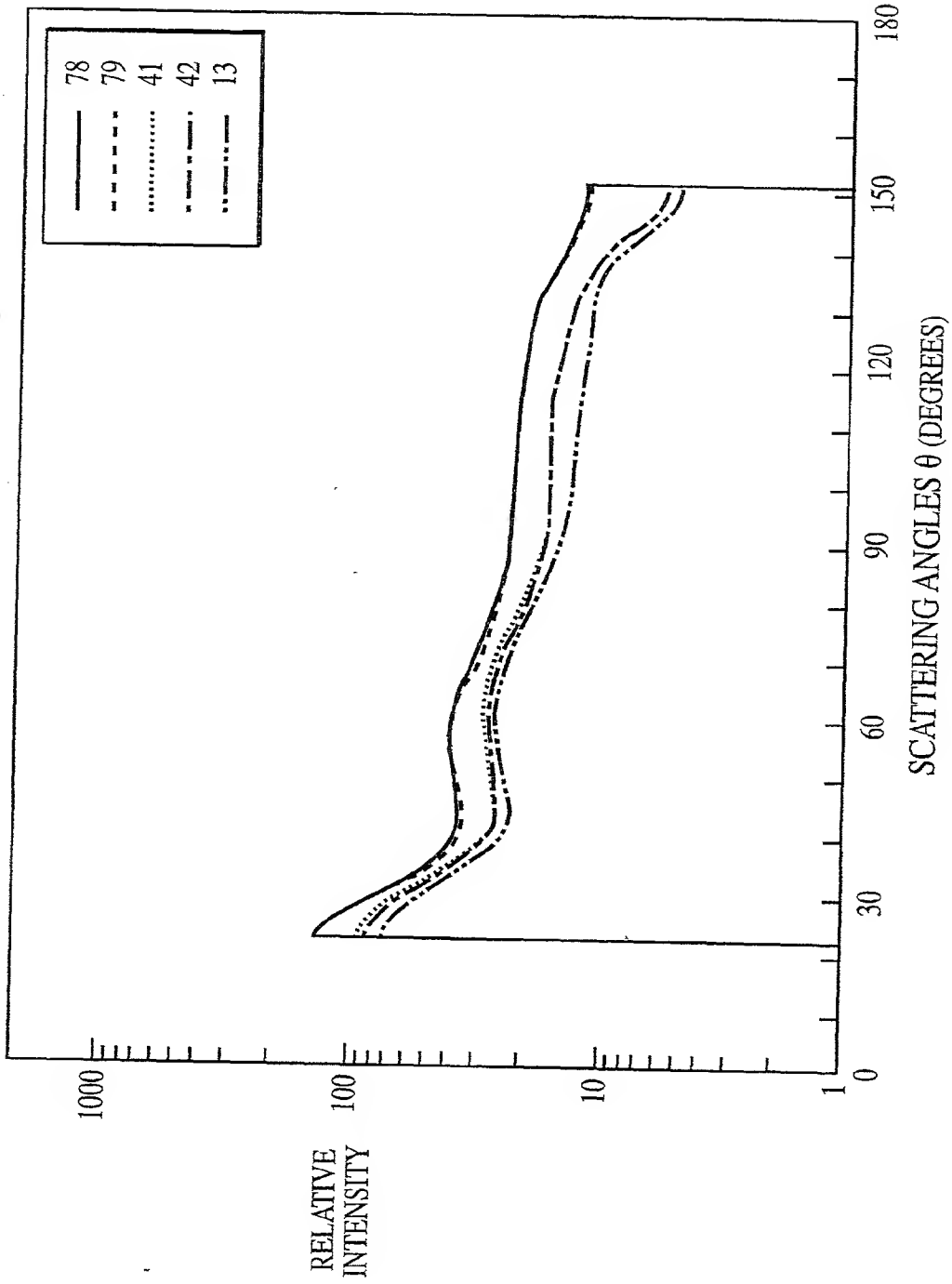

78
79
41
42
13
1000
100
10
1
0
30
60
90
120
150
180
RELATIVE INTENSITY
SCATTERING ANGLES θ (DEGREES)

Fig. 11

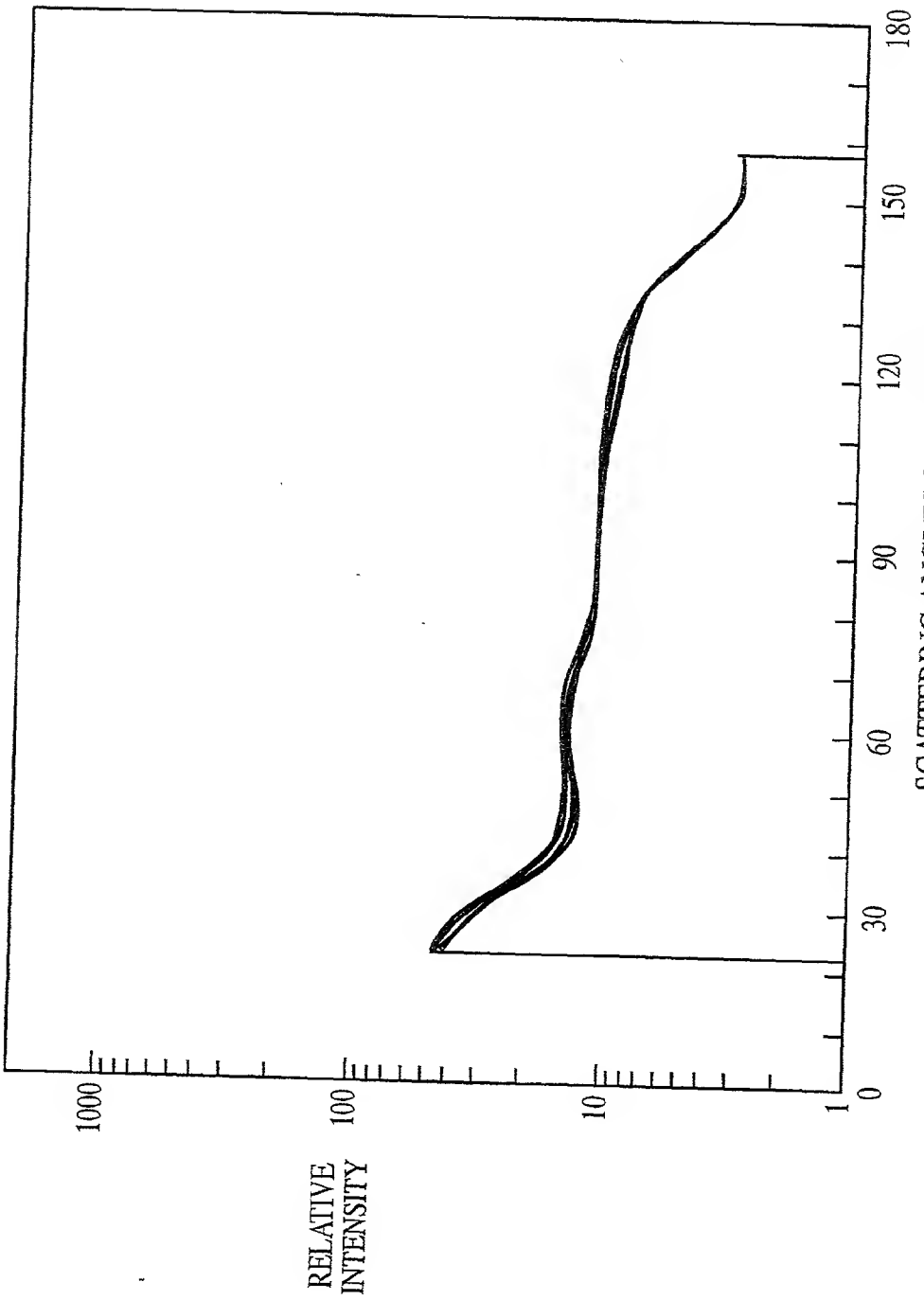

RELATIVE INTENSITY
1000
100
10
1
0
30
60
90
120
150
180
SCATTERING ANGLES θ (DEGREES)

Fig. 12

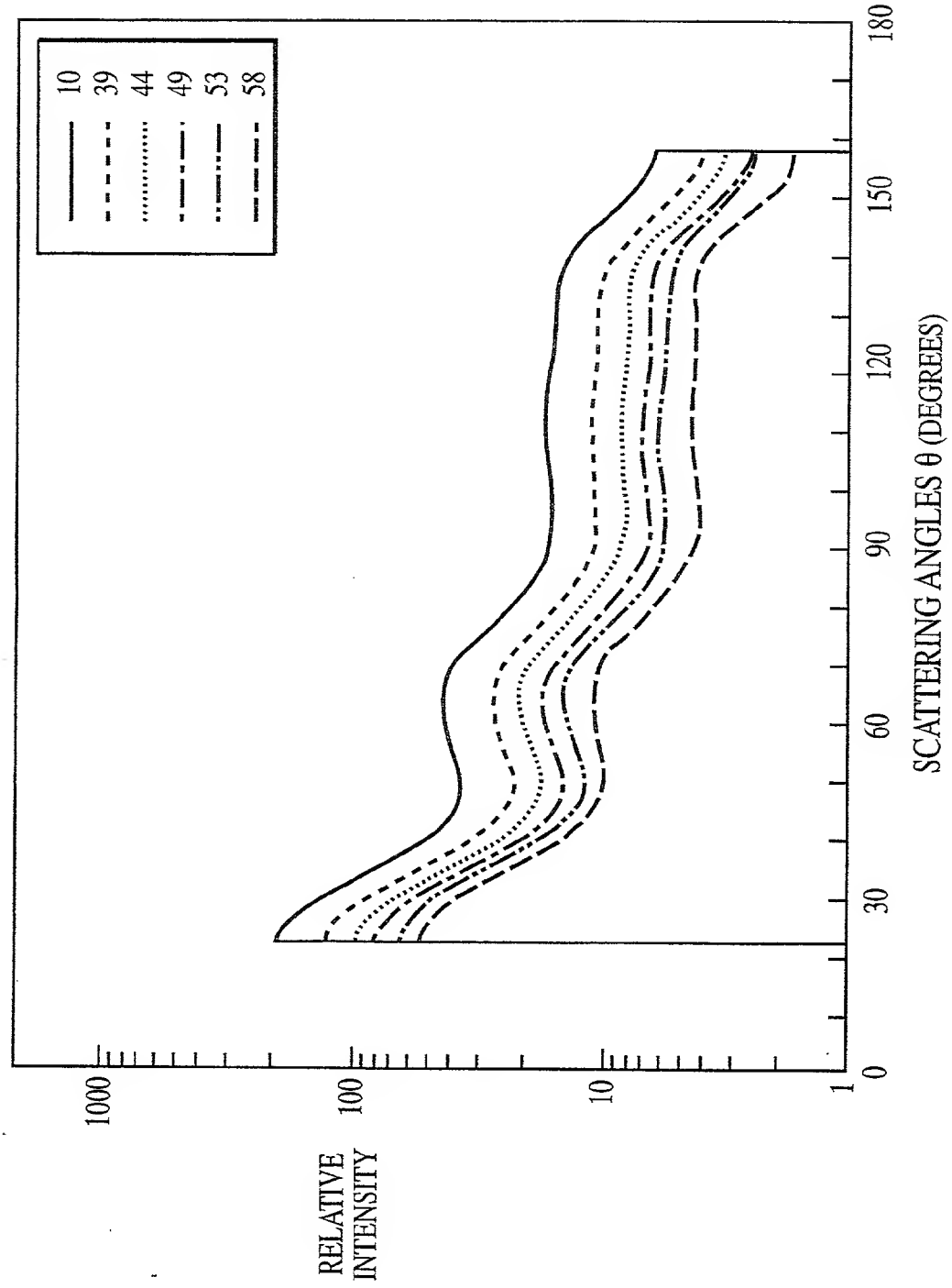

10
39
44
49
53
58
1000
100
10
1
RELATIVE INTENSITY
0
30
60
90
120
150
180
SCATTERING ANGLES θ (DEGREES)

Fig. 13

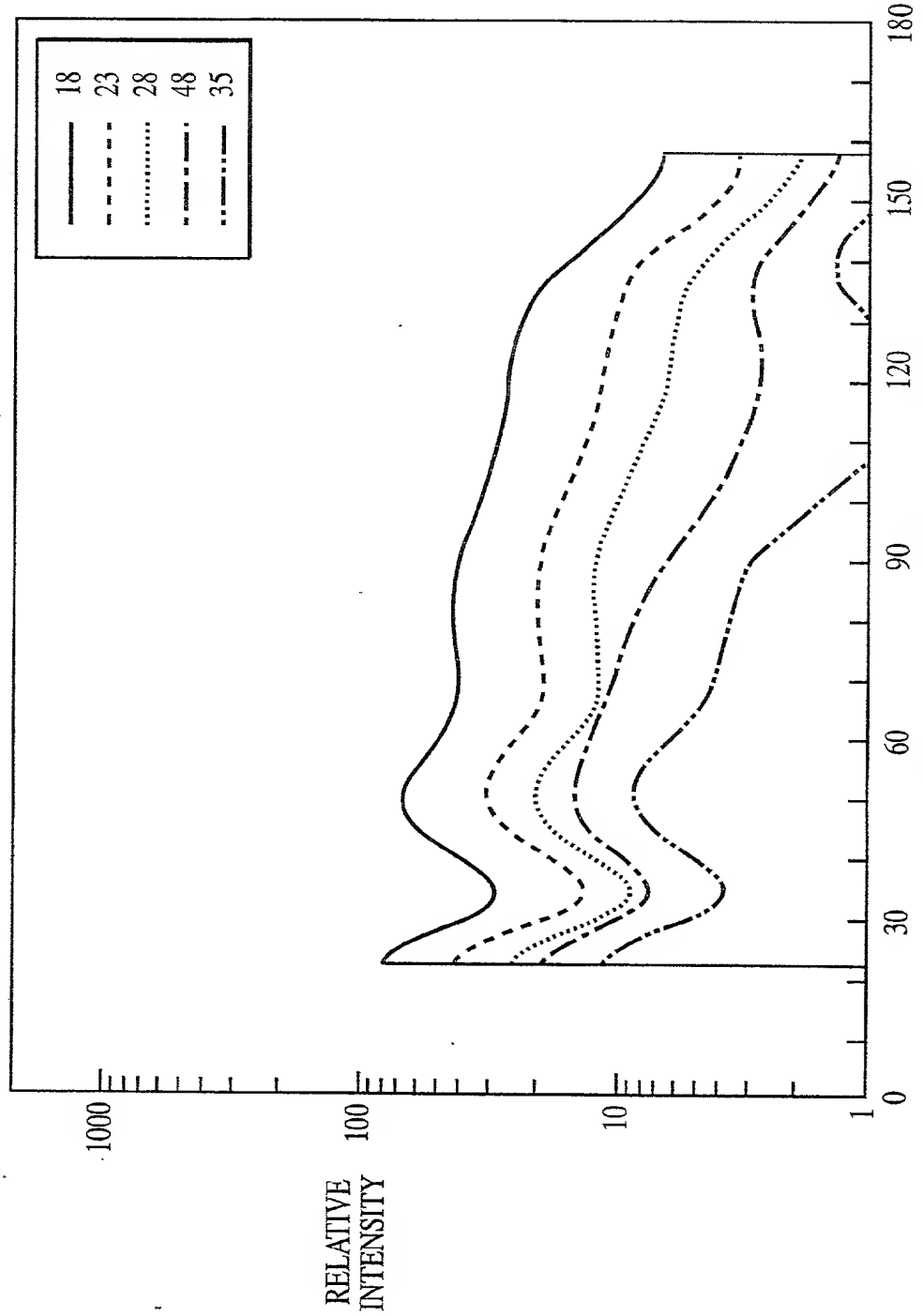

18
23
28
48
35
1000
100
10
1
0
30
60
90
120
150
180
RELATIVE INTENSITY
SCATTERING ANGLES θ (DEGREES)

Fig. 14

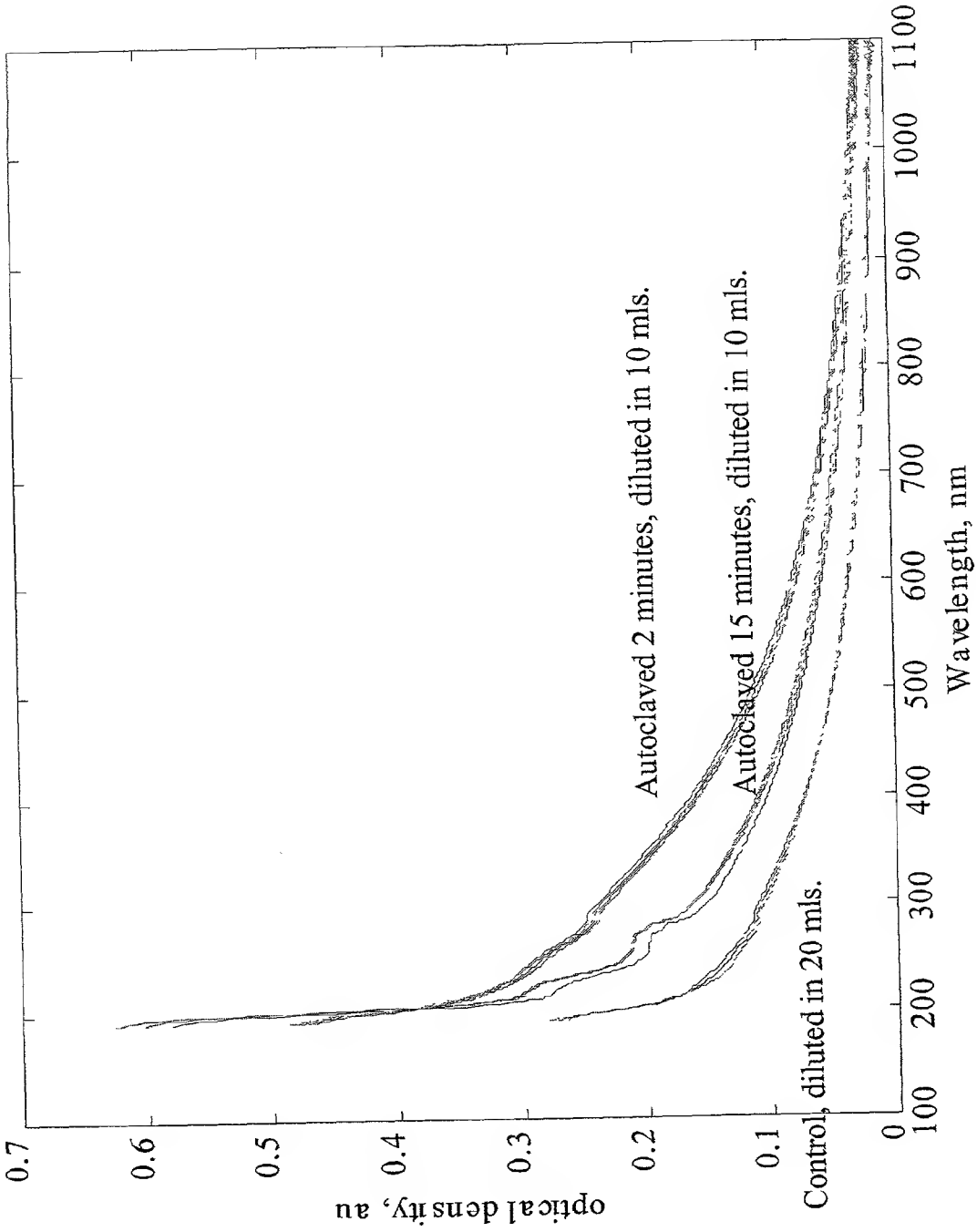

Replicates of ICF Samples
optical density, au
Wavelength, nm
Autoclaved 2 minutes, diluted in 10 mls.
Autoclaved 15 minutes, diluted in 10 mls.
Control, diluted in 20 mls.
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
100
200
300
400
500
600
700
800
900
1000
1100

Fig. 15

Title: Methods, Compositions and Kits for Biological Indicator for Sterilization Inventor: Cecil Felkner Cust. No. 570 Atty. Docket No. 61-2U5

RESULTS PROBLEM No: Time 2 hours

ESTIMATES FOR A SINGLE POPULATION

Mie Average Diameter (cm) = 2.570334E-04 +/- 3.302753E-05

Concentration (g/mL) meas. = 2.028209E-06

Concentration (g/mL) calc. = 2.028209E-06 +/- 2.261741E-07

Particle No (#/mL) = 228110.500000

Residual sum of squares = 5.012901E-05

Res. sum of squares (Norm) = 2.879399E-01

Standard Dev. (Residuals) = 3.019001E-04

Standard Dev. (Norm. Res) = 2.288071E-02

RESULTS PROBLEM No: Time 3 hours

ESTIMATES FOR A SINGLE POPULATION

Mie Average Diameter (cm) = 2.672413E-04 +/- 7.599205E-06

Concentration (g/mL) meas. = 9.346907E-06

Concentration (g/mL) calc. = 9.346907E-06 +/- 2.200983E-07

Particle No (#/mL) = 935316.800000

Residual sum of squares = 2.789136E-03

Res. sum of squares (Norm) = 7.187017E-01

Standard Dev. (Residuals) = 2.251923E-03

Standard Dev. (Norm. Res) = 3.614872E-02

RESULTS PROBLEM No: Time 4 hours

ESTIMATES FOR A SINGLE POPULATION

Mie Average Diameter (cm) = 1.969644E-04 +/- 1.826982E-06

Concentration (g/mL) meas. = 3.055250E-05

Concentration (g/mL) calc. = 3.055250E-05 +/- 2.933861E-07

Particle No (#/mL) = 7636334.000000

Residual sum of squares = 5.679470E-03

Res. sum of squares (Norm) = 2.113989E-01

Standard Dev. (Residuals) = 3.213458E-03

Standard Dev. (Norm. Res) = 1.960514E-02

RESULTS PROBLEM No: Time 5 hours

ESTIMATES FOR A SINGLE POPULATION

Mie Average Diameter (cm) = 1.405828E-04 +/- 1.859756E-06

Concentration (g/mL) meas. = 2.712445E-05

Concentration (g/mL) calc. = 2.712445E-05 +/- 4.164035E-07

Particle No (#/mL) = 1.864516E+07

Residual sum of squares = 9.585535E-04

Res. sum of squares (Norm) = 8.134952E-02

Standard Dev. (Residuals) = 1.320161E-03

Standard Dev. (Norm. Res) = 1.216175E-02

Fig. 16

Entered Database

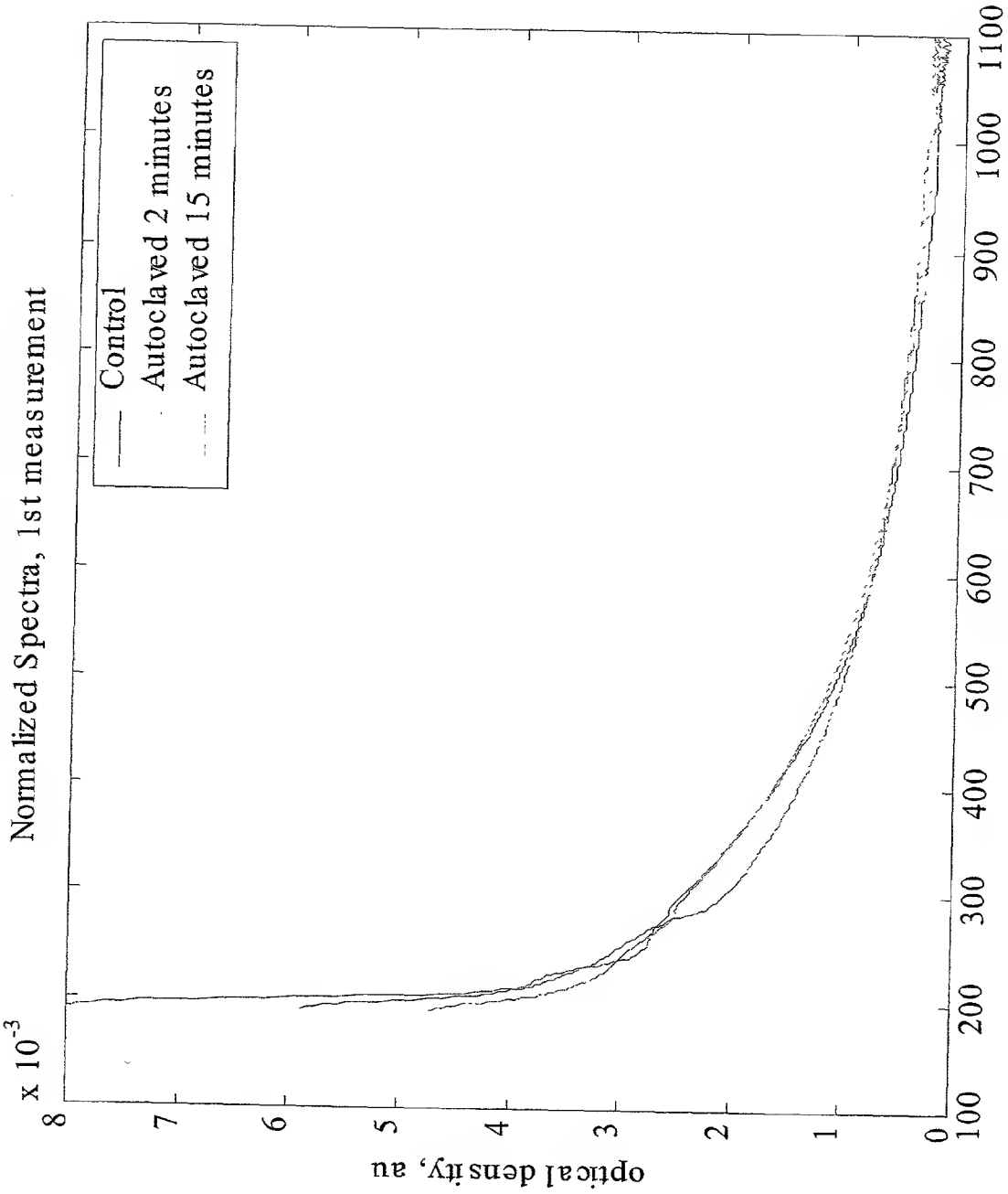


Fig. 17

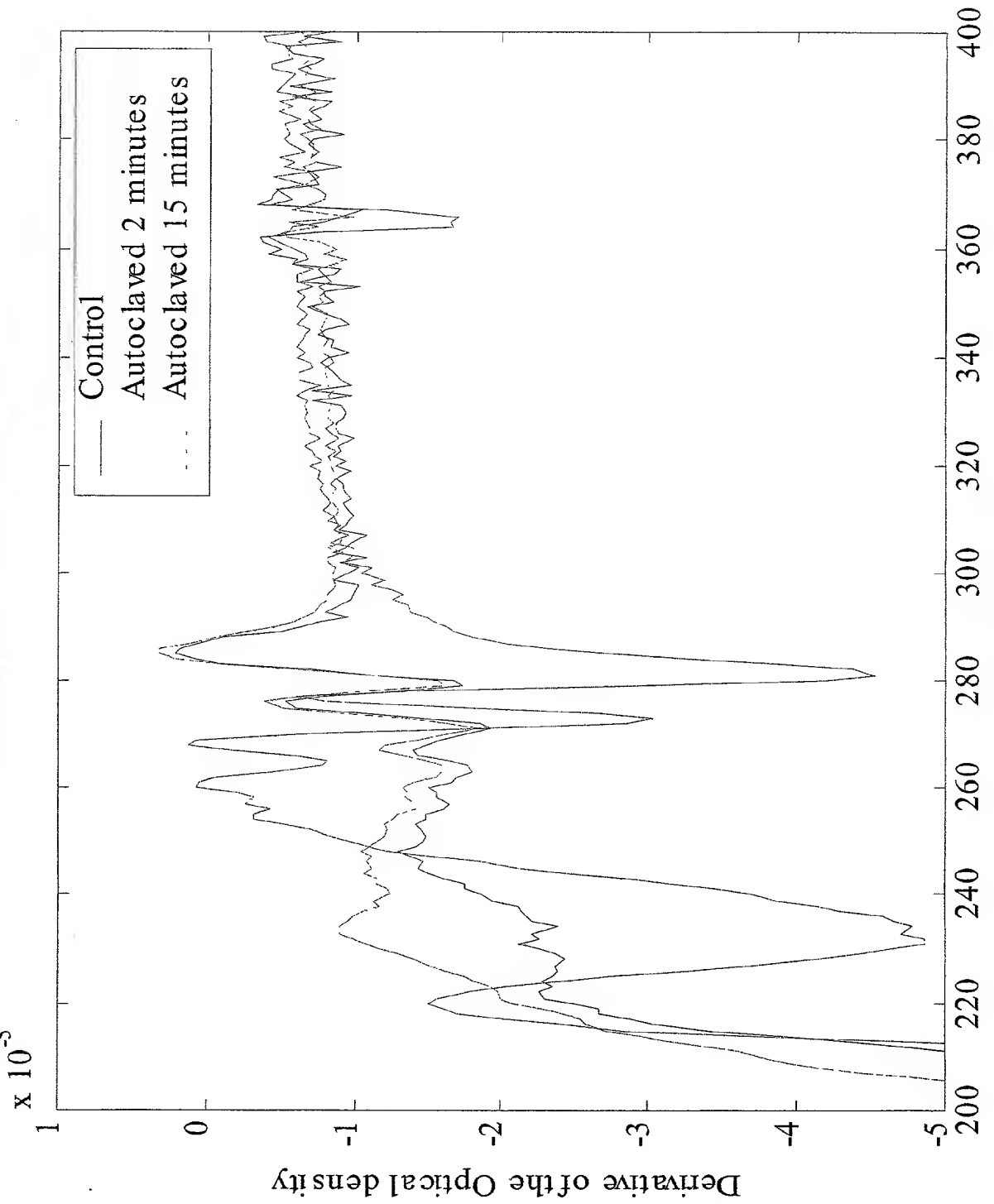

Control
Autoclaved 2 minutes
Autoclaved 15 minutes
x 10^-5
1
0
-1
-2
-3
-4
-5
200
220
240
260
280
300
320
340
360
380
400
Wavelength, nm
Derivative of the Optical density

Fig. 18

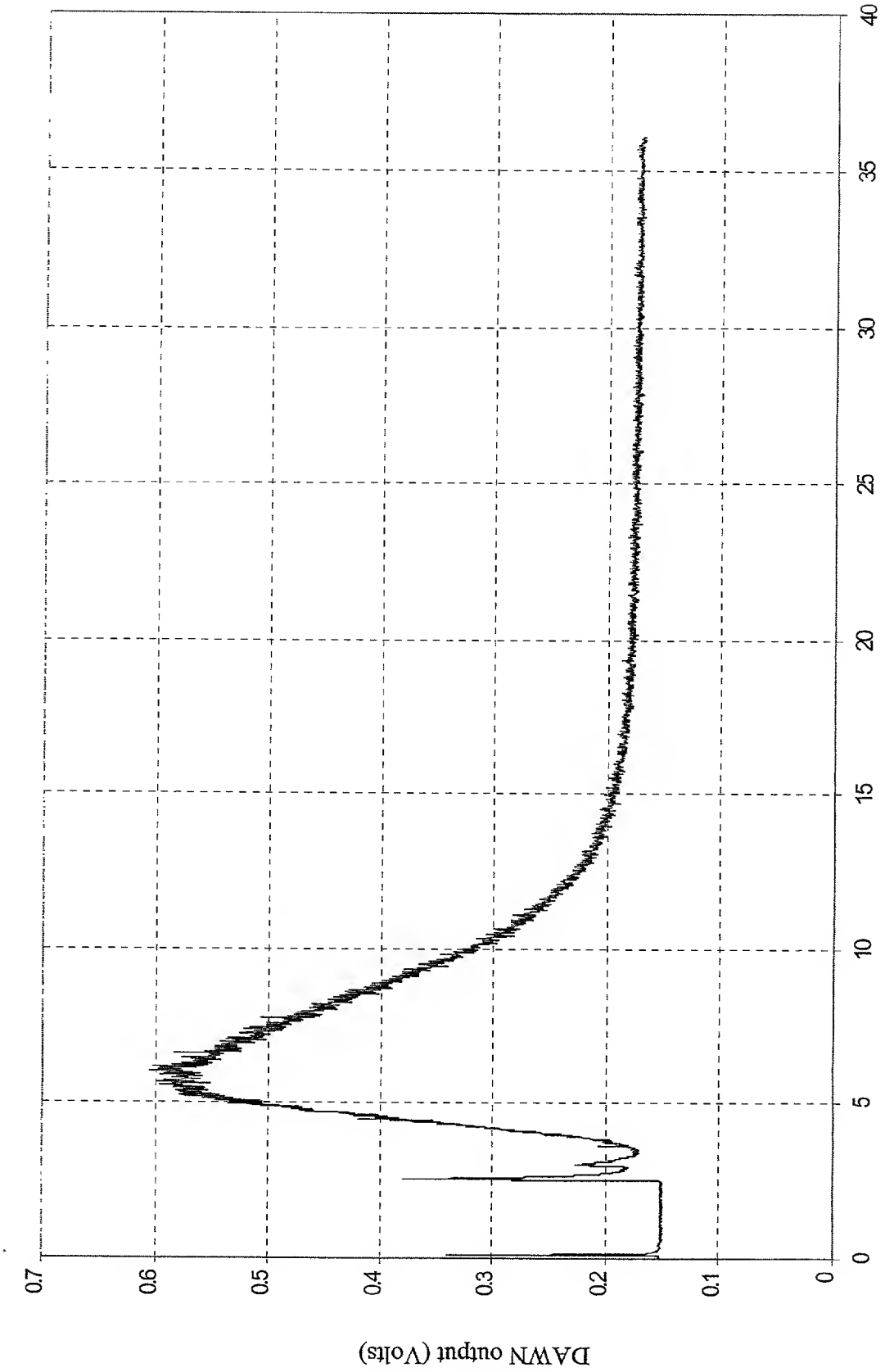

Fractionation Curve of B.subtilis in 0.42% NaCl Solution
DAWN output (Volts)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
5
10
15
20
25
30
35
40
Elution Time (min)

Fig. 19

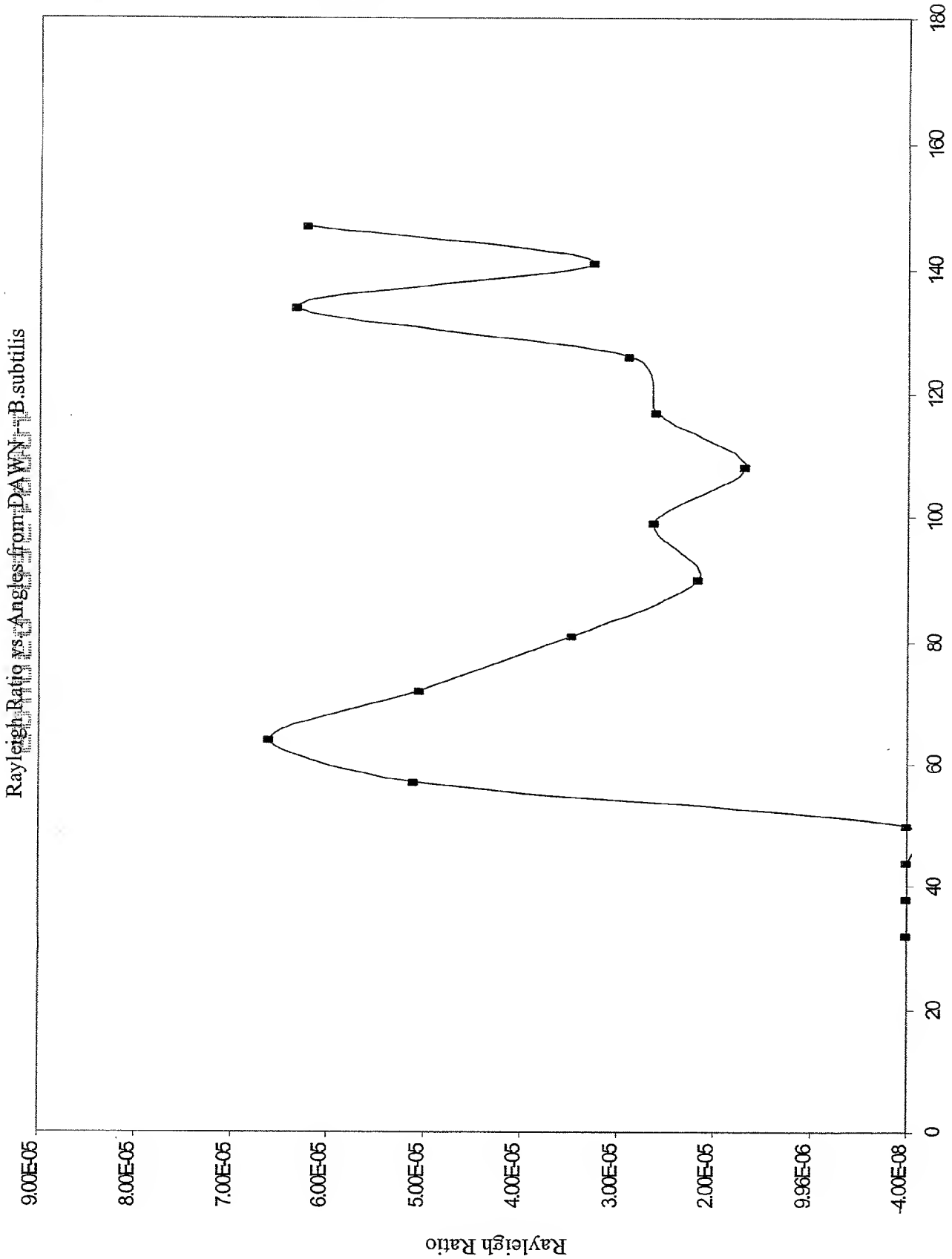
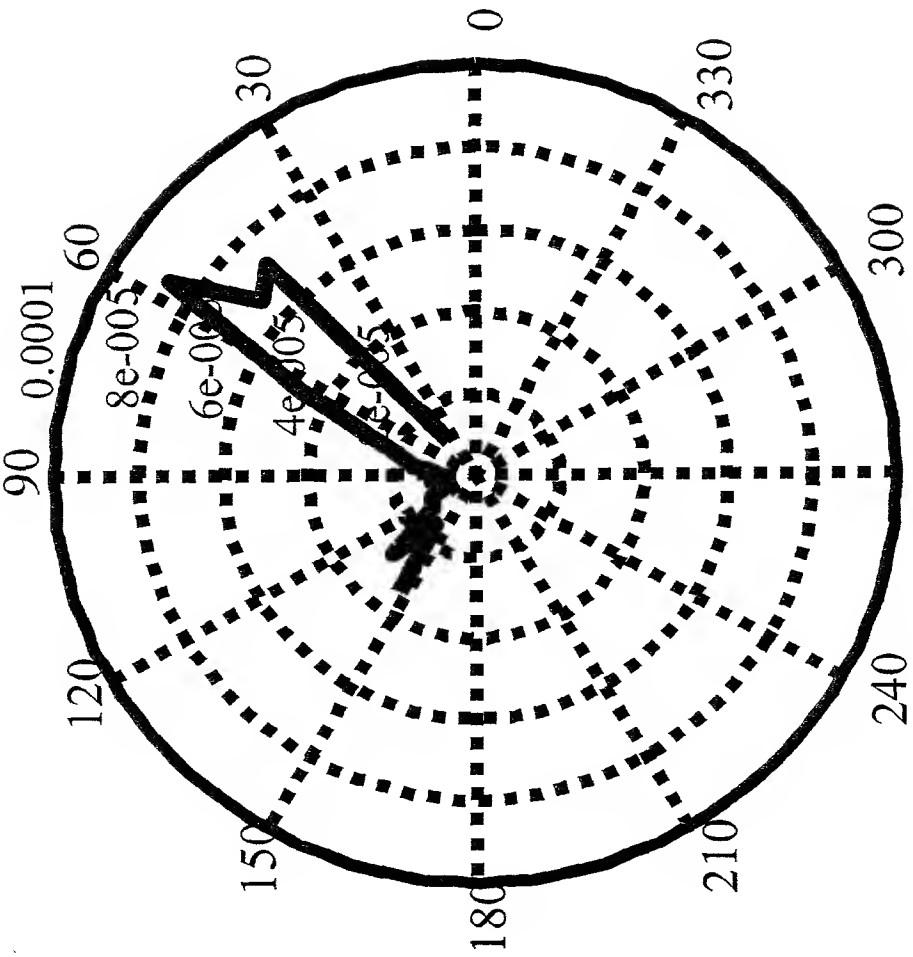

Rayleigh Ratio vs Angles from DAWN - B.subtilis
Rayleigh Ratio
9.00E-05
8.00E-05
7.00E-05
6.00E-05
5.00E-05
4.00E-05
3.00E-05
2.00E-05
9.96E-06
-4.00E-08
0
20
40
60
80
100
120
140
160
180
Angles (degree)

Fig. 20



Polar plot of *B.globigii*

Fig. 21

Polar plot of *B.subtilis*

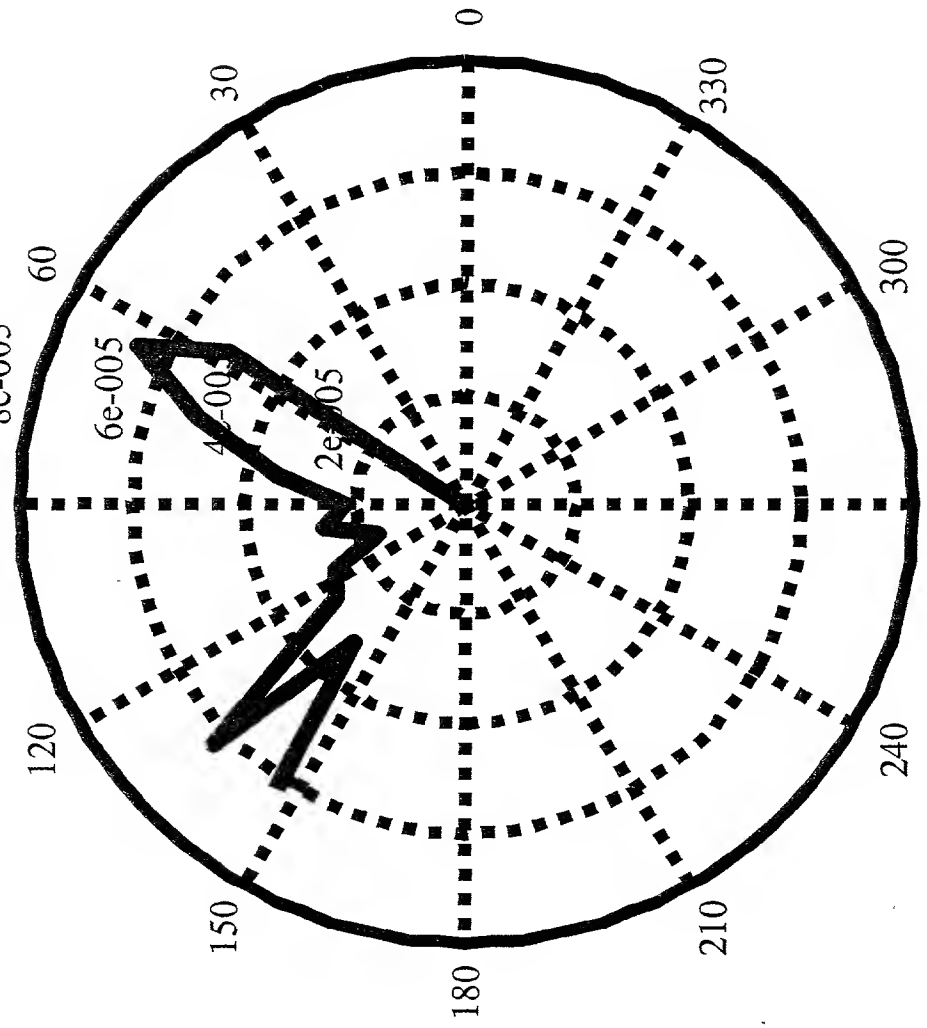


Fig. 22

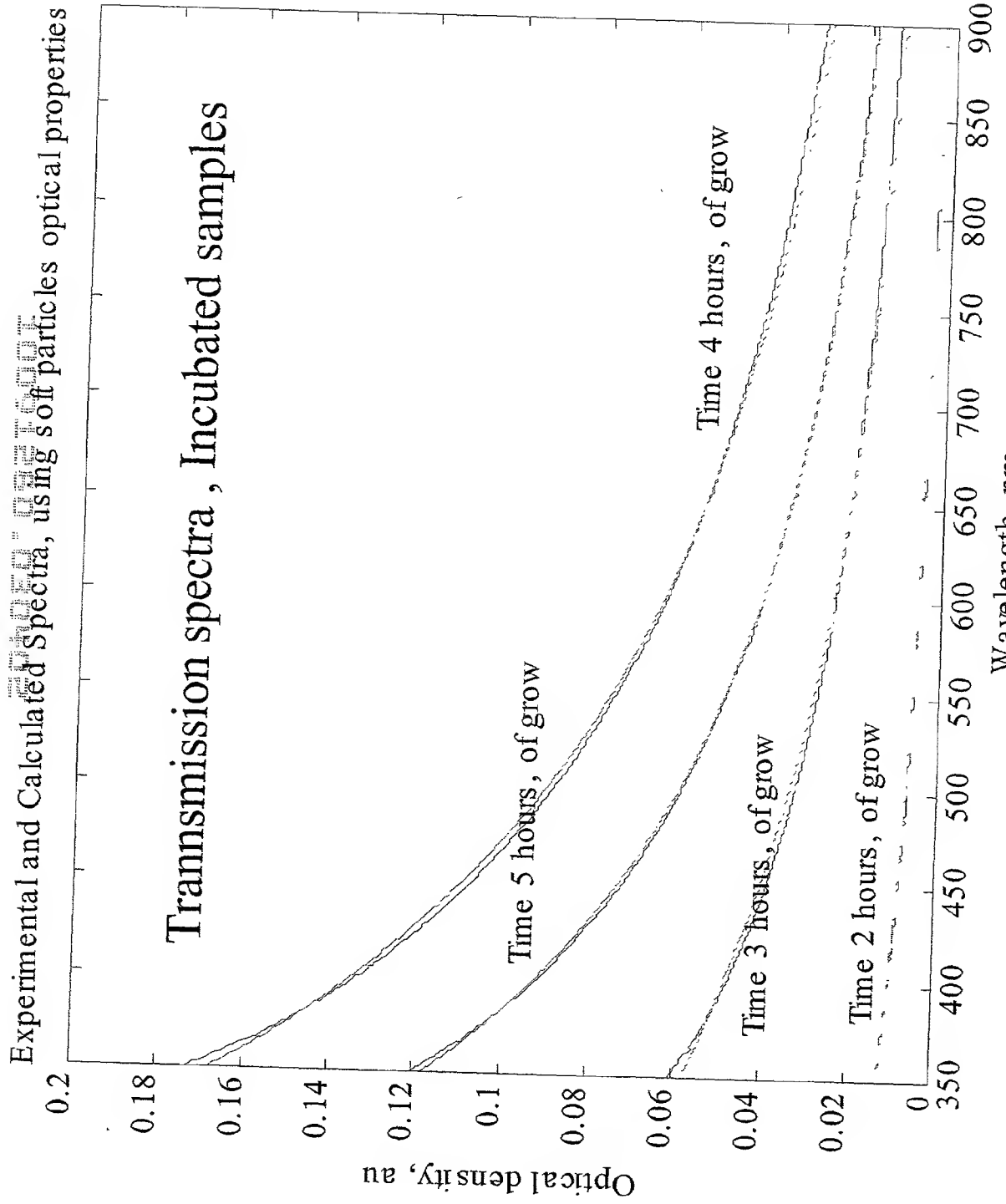

Experimental and Calculated Spectra, using soft particles optical properties
Transmission spectra , Incubated samples
Optical density, au
Wavelength, nm
Time 2 hours, of grow
Time 3 hours, of grow
Time 4 hours, of grow
Time 5 hours, of grow
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
350
400
450
500
550
600
650
700
750
800
850
900

Fig. 23